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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,772	09/19/2003	C. David Young	02CR146/KE	9426

7590 04/17/2008
ROCKWELL COLLINS, INC.
Attention: Kyle Eppele
M/S 124-323
400 Collins Rd. NE
Cedar Rapids, IA 52498

EXAMINER

KARIKARI, KWASI

ART UNIT	PAPER NUMBER
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2617

MAIL DATE	DELIVERY MODE
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04/17/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/666,772	YOUNG, C. DAVID	
	Examiner	Art Unit	
	KWASI KARIKARI	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 4-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 7-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 01/07/2008 have been fully considered but they are not persuasive.

a. In the remarks, the Applicant argues that the combination of Cain, Billhartz and Natarajan fails to disclose the claimed limitation "the data cell including routing information and the congestion metric information." (see claim 1).

However, the Examiner respectfully disagrees with such an assertion. (See below for further clarification).

Cain teaches data cell (= traffic coordination unit 18e coordinates communication with each neighboring mobile node by allocating time slots; time slot for transmission and receiving data; and RF signal, see Pars. [0030-31 and 0054]) and **during the transmission periods, multiple packets can be transmitted** (see Pars 0059 and 0077).

Cain fails to teach that the data cell includes routing information and congestion metric information.

However, Billhartz clearly teaches that "the traffic monitoring unit 70 may broadcast a traffic activity query, and processes replies to the traffic activity query. Alternatively, the traffic monitoring unit 70 may passively monitor the traffic between nodes 30 in the network 24. The route discovery unit 50 discovers routing to a destination node based upon the stored traffic information, and the route selection unit 58 selects traffic routes to the destination node based upon the stored traffic

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information. Also, the route discovery unit 50 may process the traffic information stored in the traffic database to select one of a reactive, proactive and hybrid route discovery process, and discovers traffic routes with the selected route discovery process. Each traffic route comprises a combination of wireless communication links 32 (see Par. [0074]).

Billhartz also teaches monitoring of link performance that is based on QOS parameter that is function of recent delay, available bandwidth, priority and node queue size (see Pars. 0054, 0057 and 0063-64). Furthermore, Billhartz mentions **a traffic matrix, which indicates how much traffic is being sent from a node,** and buffering of such information in a traffic information buffer (see Pars. 69-70 and 0072-73).

Therefore, the combination of Cain and Billhartz teaches "data cell including routing information and the congestion metric information." (in claim 1).

b. In the remarks, the Applicant argues that Billhartz and Natarajan fails to disclose the claimed limitation of "wherein the congestion metric information is base on comparing cell counts against a total capacity of each link, a monitoring signal of a processor buffer availability, and a monitoring of signal of priority queues capacity". (see claim 1).

However, the Examiner respectfully disagrees with such an assertion. (See below for further clarification).

Billhartz also teaches monitoring of link performance that is based on QOS parameter that is function of recent delay, available bandwidth, priority and node queue

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size (see Pars. 0054, 0057 and 0063-64). Furthermore, Billhartz mentions a traffic matrix, which indicates how much traffic is being sent from a node, and buffering of such information in a traffic information buffer (see Pars. 69-70 and 0072-73).

Therefore, Billhartz teaches the claimed limitations, “a monitoring signal of a processor buffer availability, and a monitoring of signal of priority queues capacity” and also in accordance with Applicant’s specification.

The combination of Cain and Billhartz fails to teach “congestion metric information is base on comparing cell counts against a total capacity of each link”.

Natarajan teaches the monitoring of traffic demand conditions and determining a least utilized base station for servicing a channel request by a subscriber unit, see (Par. 0008). Furthermore, Natarajan mentions processes of channels acquisition and the determination of channel utilization (see Pars. 0023-27).

c. The above response to the Applicant’s argument for claim 1 is been applied to the arguments for claims 8 and 16 since the claimed limitations are the same.

Based on the above remarks, the rejection in Final Office action using Cain, Billhartz and Natarajan is proper and maintained below.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the

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subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 and 7-22 are rejected under U.S.C. 103(a) as being unpatentable over Cain et al. (U.S. 20030198206 A1), (hereafter Cain) in view of Billhartz (U.S. 20040203820 A1), (hereinafter Billhartz) and further in view of Nataraja (U.S. 20020049039), (hereinafter, Natarajan).

Regarding **claims 1, 8 and 16**, Cain discloses a communications system/
method/ transceiver (see Fig. 1), comprising:

a plurality of transceiver nodes (mobile nodes 12a-12h, see Fig. 1) configured to utilize a time division multiple access structure (TDMA access scheme, see Par. 0004) to communicate between the transceiver nodes (12a-12h), each transceiver node generating congestion metric information based on the utilization of a link to each of its neighbors (= interference detection unit 18d detects interference in time slot for communication with neighboring mobile nodes, see Pars. [0029-30 and 0038-42]);

the time division multiple access structure including a plurality of time slots during which the transceiver nodes are configured to communicate data cells (= traffic coordination unit 18e coordinates communication with each neighboring mobile node by allocating time slots; time slot for transmission and receiving data; and RF signal, see Pars. [0030-31 and 0054]), the data cells being transmitted from a transmission queue (= queue buildup/queue state, see Par. 0079 and 0139-44), the data cells including the congestion (interference/packet error rate) metric information (see Pars. [0028, 0042

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and 0077]); but fails to teach routing information and “wherein the congestion metric information is base on comparing cell counts against a total capacity of each link, a monitoring signal of a processor buffer availability, and a monitoring of signal of priority queues capacity”.

However, Billhartz teaches routing information (see Par. [0074]). Billhartz also teaches monitoring of link performance that is based on QOS parameter that is function of recent delay, available bandwidth, priority and node queue size (see Pars. 0054, 0057 and 0063-64). Furthermore, Billhartz mentions a traffic matrix, which indicates how much traffic is being sent from a node, and buffering of such information in a traffic information buffer (see Pars. 69-70 and 0072-73). Therefore, Billhartz teaches the claimed limitations, “a monitoring signal of a processor buffer availability, and a monitoring of signal of priority queues capacity” and also in accordance with Applicant’s specification.

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Billhartz with the system of Cain for the benefit of achieving an ad hoc system that shares connectivity data (see Billhartz, Par. [0011]).

The combination of Cain and Billhartz fails to teach “congestion metric information is base on comparing cell counts against a total capacity of each link”.

Natarajan teaches the monitoring of traffic demand conditions and determining a least utilized base station for servicing a channel request by a subscriber unit, see (Par. 0008). Furthermore, Natarajan mentions processes of channels acquisition and the determination of channel utilization (see Pars. 0023-27).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Natarajan with the systems of Cain and Billhartz for the benefit of achieving a system that makes a periodic computation and exchange of traffic demand and state information to neighboring base stations, whereby improving channel management, allocation and capacity (see Natarajan, Par. 0008).

Regarding **claims 2 and 14**, as recited in claims 1 and 8, Cain further discloses the communication system, wherein the congestion metric information is generated by a channel access subsystem (see Pars. [0033-37 and 0040-42]).

Regarding **claim 3**, as recited in claim 1, Cain further discloses the communication system, wherein the cell counts are transmitted in unicast and broadcast allocated slots (see Pars. [0047, 0054, and 0058-59]).

Regarding **claim 7**, as recited in claim 1, Cain fails to disclose the communication system wherein the congestion metric information is based on the availability of unallocated slots.

However, Billhartz teaches a system wherein the congestion metric information is based on the availability of unallocated slots (see Par. [0070]).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Billhartz with the system of Cain for the benefit of achieving an ad hoc system that shares connectivity data (see Billhartz, Par. [0011]).

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Regarding **claims 9 and 17**, as recited in claims 8 and 16, Cain further discloses the communication system/transceiver, wherein the congestion metric information is provided as one of a predetermined number of states (see Pars. 0083 and 0089-90).

Regarding **claims 10 and 18**, as recited in claims 9 and 17, Cain further discloses the communication system/transceiver, wherein the predetermined number of states is four (4) (see Pars. 0083 and 0089-90).

Regarding **claim 11 and 19**, as recited in claims 8 and 16, Cain fails to disclose the communication system/transceiver, wherein a route management subsystem disseminates the congestion metric information.

However, Billhartz teaches the communication system/transceiver, wherein a route management subsystem disseminates the congestion metric information (see Par. [0074]).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Billhartz with the system of Cain for the benefit of achieving an ad hoc system that shares connectivity data (see Billhartz, Par. [0011]).

Regarding **claim 12 and 20**, as recited in claims 8 and 16, Cain fails to disclose the communication system/transceiver, wherein a route management subsystem, wherein a flow control subsystem of a second node may utilize the congestion metric information when received by the second node.

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However, Billhartz teaches wherein a route management subsystem, wherein a flow control subsystem of a second node may utilize the congestion metric information when received by the second node (see Par. [0078]).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Billhartz with the system of Cain for the benefit of achieving an ad hoc system that shares connectivity data (see Billhartz, Par. [0011]).

Regarding **claim 13 and 21**, as recited in claims 8 and 16, Cain fails to disclose the communication system/transceiver, wherein a route management subsystem, wherein the congestion metric information and routing information is transmitted by a route management subsystem.

However, Billhartz teaches wherein a route management subsystem, wherein the congestion metric information and routing information is transmitted by a route management subsystem (see Pars. [0073-74]).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Billhartz with the system of Cain for the benefit of achieving an ad hoc system that shares connectivity data (see Billhartz, Par. [0011]).

Regarding **claims 15 and 22**, as recited in claims 8 and 16, Cain further discloses the communication system/transceiver, wherein the transmission system is a time division multiple access (TDMA) system (see Pars. [Pars. [0004 and 0010]).

Conclusion

3. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kwasi Karikari whose telephone number is 571-272-8566. The examiner can normally be reached on M-F (8 am - 4pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Appiah can be reached on 571-272-7904. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8566.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you

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have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Kwasi Karikari/
Patent Examiner
Art Unit 2617
04/12/2008

/Charles N. Appiah/

Supervisory Patent Examiner, Art Unit 2617